PRODUCT: Oil Spill Eater II

Apply for: Alternative Oil Spill Response Technologies.

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Since 1989, OSEI Corp has cleaned up of over 14,000 spills as a first and only response tool. OSE II is distributed in over 35 Nations and focuses on speeding up Mother Nature. **Oil Spill Eater II (OSE II)** is the world's most environmentally safe and cost effective bioremediation process for the mitigation of hazardous waste, spills and contamination virtually anywhere of any size. It is an environmentally safe cleanup method because it uses natures own bioremediation processes to effectively eliminate hazardous materials. OSE II is listed on the US EPA's National Contingency Plan for Oil Spills (NCP), OSE II is listed in the U.S. Defense Logistics supply chain and OSE II is in the Navy DENIX system as BAA Book 18 number 14.

The process: OSE II is applied to a spill, the biosurfactants attack the molecular structure of the hydrocarbon, by breaking the spill into small particles, then the oil is solubilized which increases the oil water interface all in approximately 30 minutes. During this process the OSE II enzymes form protein binding sites that will act as catalysts to induce the enhanced bacteria to utilize the broken down hydrocarbon as a food source. Once these reactions have occurred several things become apparent, the oil is broken up, adhesion properties are diminished (which causes oil to release from marsh grass, vessels, BIRDS, marine species, beaches and more) the fire hazard is reduced (which protects responders & ports) the oil is caused to float (which prevents secondary contaminated areas) and most importantly the oil is detoxified so it can be used as a food source at which point the oil is digested to an end point of CO2 and water; and then the enhanced bacteria die off to pre spill background levels. While these reactions are occurring OSE II's nutrient system is rapidly colonizing indigenous bacteria (OSE II does not introduce non indigenous bacteria into any eco system). Once the indigenous bacteria run out of the OSE II nutrients the bacteria then utilize the only food source left, the detoxified oil. There are also constituents in OSE II once mixed and activated by natural water, cause OSE II constituents to molecularly adhere to hydrocarbons, so no matter where the current, or tidal action pushes the oil OSE II will stay with it. OSE II can be used on the surface, below the surface, on the ocean floor, in marshes, estuaries, sand or soil beaches on rocks, in bays, ports and harbors, and we have case studies and pictures at www.osei.us to prove it.

RRT 6 has had a success with OSE II on the Osage Indian Reservation. Mr. Nick Nichols of the EPA oil program, and Debra Dietrich of the EPA Headquarters and Mr. Robinson EPA, Region 9 all have first-hand knowledge of OSE II being used in San Diego Bay by the U.S. Navy for over 100 spills, over a 3 ½ year period with no adverse effects to the whales, dolphins and other ocean ecology. BP has used OSE II in Trinidad and Tobago and a refinery in Greece. Our tech package list the many OSE II toxicity tests on salt and fresh water species which shows OSE II to be virtually non toxic. OSEI Corp and OSE II are trusted and used by all 5 bodies of the U.S. Military. Please go to our website for additional documentation including our technical package along with videos which include the demonstration of OSE II on Grand Isle where the oil already had been treated with dispersants and OSE II still cleaned it up. www.osei.us

OSE II has been extensively reviewed by the Navy Environmental Health Center in Norfolk, Virginia. Mr. Jerry Drewer was our Contact: (757) 363-5540. OSE II has also been extensively tested by the Naval Research Lab in Key West, Florida: Our contact was Mr. Jan Berge (305) 293-4216. OSE II is so good OSE II is actually mentioned in other countries Coast Guard Handbooks as the first response method for cleaning up a spill. OSE II is virtually non-toxic and extremely effective in breaking down oil. Our technical package contains in depth analysis proving it in the following tests:

Salt Water Efficacy Tests:

-U.S. EPA / NETAC 21 Day & 28 Day Bioremediation Test - Biodegraded Alaskan Crude 98% in 21/28 days

-U.S. Respirosity Test – EPA determined OSE II to reduce hyrdrocarbons by 98% and aromatics by 85% which was better than any other product tested.

-University of Alaska (Dr. Brown) PAH Test – Demonstrates that OSE II with mineral nutrients and hydrocarbons is **300%** more effective than without OSE II.

-Mega Borg Ship Spill in Gulf (South African Crude Oil) Test – In 216 hours OSE II lowered TPH from 100,070 ppm to 516 ppm for a 99.5% reduction.

-BETX Bioremediation Test- OSE II can even work well on Benzene, Ethyl Benzene, Toulene and Xylene ratios demonstrate the potential to biodegrade as much as 98%.

Fresh Water Efficacy Tests:

-Chevron Crude Oil Bioremediation Test- OSEII on Chevron Crude in 24 days reduced 95,200 ppm to 690 ppm or 99.8% effective on biodegrading this oil.

Soil Efficacy Tests:

-U.S. Marine Corps Base 29 Palms California (Cleanup Won Environmental Award)

Salt Water Species Marine Toxicity Tests

-U.S. EPA / NETAC Mysid Toxicity Test (this test was run twice) – LC50 Test, at 96 hours OSE II greater than 2100 mg/L.

-Both Mummichog and Artemia Salina Toxicity Test – LC50 Test, at 48 hours OSE II is 5285 mg/L.

Fresh Water Species Marine Toxicity Tests

-Rainbow Trout Toxicity Test by Environment Canada-Toxicity tests state 1000 mg/L or less is toxic. Anything higher is acceptable and considered non-toxic. OSE II, test result 10,000 mg/L = non-toxic.

Beneficial Environment Effects

-Biological Oxygen Demand for OSE II –OSE II has minimal impact on BOD, less than 7%.

-Dispersant Swirling Flask Test - Proves OSE II causes oil to float

I. OSE II is mixed at a ratio of 50 gallons of water to 1 gallon of OSE II, and then applied at a 1 to 1 ratio of mixed OSE II and water to each released gallon of oil without dispersant.

II. OSE II is mixed at a ratio of 25 gallons of water to 1 gallon of OSE II, and applied at a 1 to 1 ratio of mixed OSE II and water to each released gallon of oil in which dispersants were applied.

III. For quick more efficient mobilization of heavy oil and tar balls OSE II should be mixed at a ratio of 25 gallons of water to 1 gallon of OSE II, and applied at a 1 mixed gallon of OSE II and water to each 1 gallon of tar/weathered oil, and or tar balls.

IV. In marshes and estuaries, or areas where there is only a sheen, OSE II should be mixed at a ratio of 100 gallons of water to 1 gallon of OSE II and then applied 1 mixed gallon of OSE II and water to each gallon of sheen. Where there is heavy oil or tar refer to III. Above

V. Plumes need a slight amount of pressure from the nozzle to the edge of the plume. Enough pressure to broadcast the OSE II and water mixture into the plume edge. Measurements of plume thickness will need to be determined as to how much OSE II to apply to a given yard or meter of plume edge.

VI. For all booms, vessels, docks, or any material that come into contact with oil dispersed or otherwise, OSE II shall be mixed at a ratio of 25 gallons of water to 1 gallon of OSE II and applied until oil mobilizes from the surface of material.

NOTE: Based on a counter showing 243,600,000 gallons of oil lost to date June 17, 2010.

VII. Approx. volume of oil dispersed is 10,000,000 which will require a ratio of 25 gallons of water to 1 gallon of OSE II. This would require 10,000,000 divided by 25 equals a requirement of 400,000 gallons of OSE II

VIII. Approx. volume of oil released without dispersant is 233,600,000 which will require a ratio of 50 gallons of water to 1 gallon of OSE II. This would require 233,600,000 divided by 50 equals a requirement of 4,672,000 gallons of OSE II needed.

IX. Approx. volume of dispersant used 1,000,000 will require a ratio of 50 gallons of water to 1 gallon of OSE II. This would require 1,000,000 divided by 50 equals 20,000 gallons of OSE II.

X. Varying volume, has an approximation of oil and dispersant at 245,600,000 gallons, and this would require 5,072,020 gallons of OSE II

IX. We have readied and worked out calculations to apply OSE II by 747 aircraft, air boats for marshes and estuaries, and have discussed how to out fit average vessels with pumps and fire fighting induction systems, for beaches on Islands and remote areas, and electric back pack sprayers can be used for some areas as well.

RETAIL PRICE LIST
Oil Spill Eater II (OSE II)
Concentrate

QUANTITY	***BIODEGRADES (Cleans up)***	***PRICE***
1. One (1) Case	***250 Gallons of all Hydro-carbons. Mixing ratio - 5 gallons = 2 gallons . One gallon of water and 3 2.5 gallons . Ounces of OSE II Concentrate containers. per gallon of fuel spilled.***	***$695.00***
	Cleanup cost per gallon = $2.78	
2. One (1) Drum 55 Gallons	***2750 gallons of any hydrocarbon: $5495.00 Mixing Ratio: 50 to 1 Same as #1 above***	

P2 Retail price list

Cleanup cost per gallon of spilled hydrocarbon based contaminat (oil, gasoline, diesel, jet fuel, refined and unrefined contaminants)= $2 .00

OSE II will biodegrade any hydrocarbon based chemical, i.e. refined, or unrefined hydrocarbons, jet fuel, diesel fuel, gasoline, radiator fluid, engine oil, hydraulic fluid or heavier oil. The mixing ratio is 50 to 1. Therefore, cleanup quantities will be 3 ounces per gallon of oil spilled.